

Arboricultural Survey

Lane east of Wandleys Lane
Walberton
West Sussex
BN18 0QR

26th April 2017



PJC ref: 4419/17-01 Rev1

This report has been prepared by
PJC Consultancy Ltd
on behalf of
Welbeck Land

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1 INTRODUCTION

1.1 **Instruction:** PJC Consultancy has been instructed by Welbeck Land to provide an arboricultural survey of land east Wandleys Lane in Walberton.

1.2 **Brief:** PJC Consultancy has been commissioned to undertake an initial arboricultural survey following the guidelines set out in BS5837: 2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

1.3 **Scope of this report:** This report is concerned with all significant trees located within the property boundaries of the site. Additionally, trees located around the curtilage of the site have also been surveyed when they are considered likely to have the potential to impact on the development (in relation to root and crown protection or foundation design).

1.4 **Purpose of report:** This survey has been undertaken to record the condition and value of all significant trees at the site as well as the material constraints they pose on the development. The information in this report should be used to guide the design proposals.

1.5 **Documents and information provided:** The following documents were provided by the client to produce this report:

- OS Site Location Plan
- Drawing ref. 17/071/100-500 – Topographical Survey

2 SITE VISIT AND SURVEY METHODOLOGY

2.1 Site visit: A site visit was carried out on 12th April 2017. The weather conditions at the time were fine and dry. The visibility was adequate for visual tree inspection from ground level.

2.2 Tree information: The following information was recorded in the Tree Survey Schedule for each individual tree (average dimensions are recorded for groups):

- Tree reference number. (T=tree, G=group, H=hedgerow, W=woodland block). Tree numbers suffixed with PA on the Tree Constraints Plan indicate the trees location was not included on the site plan provided so the tree's position was approximated on site.
- Species (common and scientific name).
- Overall tree height (m).
- Stem diameter (mm) per stem or average diameter for multi-stemmed trees with six or more stems.
- Branch spread (m) measured to the four cardinal points.
- Existing height (m) above ground level of lowest significant branch and direction of growth (for individual trees only).
- Existing height (m) above ground level of canopy.
- Age class (young, semi mature, early mature, mature, over mature or veteran).
- Physiological condition (good, fair, poor).
- Structural condition (good, fair, poor).
- Comments (general description of tree including any notable features).
- Preliminary management recommendations (prescriptions for tree management processes based on the current land use and not related to the proposed development).
- Tree categorisation (see below).
- Root protection area (m²).
- Root protection radius (m).

2.3 Tree categorisation: The condition and value of each tree was evaluated based on the current land use. Each tree or tree group has been awarded either category A, B, C or U and a sub category of either 1,2 or 3 or a combination of the sub categories.

2.4 Tree categorisation summary:

- A – Trees of good condition or high value, with a predicted life span in excess of forty years.
- B – Trees of moderate condition or value, with a predicted life span in excess of twenty years.
- C – Trees of poor condition or low value, with a predicted life span in excess of ten years.
- U – Trees of such impaired condition that they cannot realistically be retained as living trees in the context of the current land use for more than ten years.

2.5 Tree sub categorisation summary:

- 1 – Trees have mainly arboricultural value, e.g. trees of good condition, form and vitality or rare tree species.
- 2 – Trees have mainly landscape value, e.g. trees of landscape prominence, that serve to screen unsightly views or that are required for privacy.
- 3 – Trees with mainly cultural value including conservation, e.g. commemorative trees, trees of historical significance, trees of ecological significance or veteran trees.

2.6 Each tree can only be categorised as A, B or C but may comply with more than one sub category. A cascade chart further explaining how tree categorisation is decided is included in Appendix 3.

2.7 **Root protection areas:** Each tree's stem diameter was recorded, and applied to the formula found in Appendix 4 to establish its root protection area. A root protection area represents a calculation of the minimum area of root growth required to support the tree, not the total rooting area.

2.8 The root protection areas are plotted onto the Tree Constraints Plan in Appendix 1, and recorded in the Tree Survey Schedule in Appendix 2. These are represented as a circle on the plan (unless significant rooting constraints are present), and are colour coded depending on the category the tree has been awarded. Where existing site conditions/features are present that are deemed likely to have affected the root morphology, the root protection areas have represented as a polygon of equivalent size.

2.9 The disturbance of a tree's root system can result in crown dieback and even death of the tree. Roots are used to support the tree structurally and act as transport for water and nutrients. Direct damage such as root severance can lead to ill health, as can compaction of the soil by construction traffic, heavy plant and storage of materials. Changing the nature of the surface above the growing medium, (i.e. from porous to non-porous), can alter the resources available to the tree, which in turn can lead to its decline.

2.10 The root protection areas must be left free from excavation and disturbance, and protected from compaction or contamination during any proposed works. The majority of root growth is usually found within the top meter of soil. As such, even shallow disturbance within root protection areas can potentially have a significant impact on the trees.

2.11 **Limitations of site visit:** The survey methodology was restricted to a visual tree assessment from ground level. No tree climbing or ground investigation was carried out for this report. Where existing site constraints are present such as ivy covered trees, a very dense under-storey, or where trees are located on third party land to which access was not granted, tree dimensions were estimated by eye as accurately as possible.

3 SITE DETAILS AND SURVEY FINDINGS

3.1 Site location: The site is situated to the south-west of Wandleys Lane in Walberton, West Sussex. It has a central OS national grid reference of SU956066. The surrounding land use is comprised residential properties on Wandleys Lane and West Walberton Lane to the north and east, Wandleys Copse to the south-east and Woodfield Farm to the south-west. The location of the site within its environs is shown in figure 1.



Figure 1: Location of Site and Environs

3.2 Site layout: The site comprises a large grass field used as animal pasture. The site is accessed via Wandleys Lane on the north-eastern boundary adjacent to a small number of agricultural storage buildings. A belt of trees is located along Wandleys Lane with further trees located along the northern, eastern and southern boundaries, most of which are situated on third party land.

3.3 Several large oak trees are located within the private garden areas on the northern and eastern field boundaries, of which T24, T30, T31, T39, T40, T44, T45 and T52 have been recognised as being of sufficient quality and value to be categorised as A. Although these trees are identified as having notable value, it is important that all third party trees are protected if the site is developed. It is recommended that where old, over-mature trees are present, no ground works including no-dig surfacing, be constructed within their root protection areas as older trees are less able to adapt to changes in their environment than younger specimens.

3.4 The most prominent arboricultural feature at the site is Wandleys Copse, located outside the southern boundary. This woodland block is designated ancient semi-natural woodland (shown on <http://magic.defra.gov.uk/>), so has been given an overall BS5837 category of A3.

3.5 Wandleys Copse has been given an average root protection area of 4.2m from the site boundary, however large individual trees with bigger root protection areas or crown spreads have been individually surveyed and plotted on the Tree Constraints Plan. There are numerous, large old trees on the edge of the woodland, many of which comprise over-mature ash growing from old coppice stands. Several of these trees have been identified as having defects which do not pose a significant risk, based on the existing, low frequency land use. It is however recommended that any development at the site avoids increasing the frequency of land use within their target zones. As ancient semi-natural woodland, Natural England's current advice is that a 15m buffer be left clear of development from the edge of the woodland. It is also recommended that this space not be used as public open space with paths or other features that will encourage public access.

3.6 Information and measurements for each tree or group can be viewed in the Tree Survey Schedule in Appendix 2.

3.7 **Tree categorisation summary:** A total of forty-five trees, thirteen tree/shrub groups, one hedgerow and one woodland block were surveyed and recorded in the Tree Survey Schedule.

Table 1: Tree categorisation summary

Categorisation	Individual tree	Tree group	Hedgerow	Woodland
A	8	-	-	1
B	25	2	-	-
C	10	11	1	-
U	2	-	-	-
Total	45	13	1	1

3.8 **Statutory tree protection:** Arun District Councils online mapping service was used on 21st April 2017 to establish restrictions to tree works at the site. It showed the site is not located within a Conservation Area, however tree preservation orders (TPO) affect trees located within the properties named The Pine and Chilterns to the east of the site, as well as Wandleys Cottage and Woodlea Cottage to the north of the site. No information was available regarding the specific trees in these properties that are covered by the TPOs. The online map also shows TPO/WA/2/14 as protecting the land to the north-west of Wandleys Lane and the agricultural storage buildings within the site, however the TPO Plan only identifies trees located on the opposite site of Wandleys Lane and not those surveyed for this report.

3.9 Any persons proposing to undertake tree works on this site must check the status of the trees with the local authority, and gain necessary consent before works are undertaken. Financial penalties and/or criminal proceedings can result if tree works are carried out on a protected tree without consent. The entirety of the tree is protected, both above and below ground.

4 CONCLUSIONS

4.1 To comply with BS5837: 2012, it is recommended that an arboricultural impact assessment be produced when the proposed layout has been fixed. The arboricultural impact assessment should include a schedule of trees to be retained and removed as well as pruning required to enable the construction works. It should also evaluate the likely effects of the construction works on retained trees including post development pressures and provide recommendations on mitigation measures to be implemented. The arboricultural impact assessment should be accompanied by an arboricultural method statement and a dimensioned Tree Protection Plan to show how retained trees will be protected whilst the development is constructed.

4.2 As far as possible new buildings and areas of hard surfacing should be located outside of the root protection areas of retained trees. In certain situations, engineered solutions are available to allow construction within the root protection areas. Further input from an arboriculturalist should be sought regarding their site-specific viability before these methods are relied upon.

4.3 Over-shading of gardens and dwellings for prolonged periods, nuisance caused by leaf/fruit drop or honeydew drip (particularly onto footpaths, parking areas or roof guttering) and an over-bearing presence of large trees can result in significant pressure from future residents to carry out harsh remedial pruning works or to remove trees post development. All of these factors should be considered at the design stage.

4.4 Allowance should be made for future canopy growth of both existing and newly planted trees. Trees growing in areas of limited space may require regular future pruning works. The suitability of different species for regular crown reductions, the affect on their amenity value and the cost of future tree works should be considered.

4.5 The final design should show service locations and their routing. New utilities should be located outside of the trees root protection areas where they are underground and outside of the anticipated area of mature crown spread where above ground. If this is not possible, recommendations outlined in NJUG10 '*Guidelines for the planning, installation and maintenance of utilities in proximity to trees*' should be followed. Advice should also be sought from the project arboriculturalist.

4.6 Where tree removal is necessary to facilitate the wider regeneration benefits associated with development, a tree replacement strategy could be implemented to mitigate tree loss. If further tree planting does occur, consideration should be given to species selection (in relation to form and potential size) and planting locations to ensure their successful integration into the new development.

5 OTHER CONSIDERATIONS

5.1 Trees should be checked for protected species before works are undertaken. It is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations. Nesting birds are protected by the Wildlife and Countryside Act. If protected species are discovered, Natural England should be contacted for advice.

5.2 The tree works contractors should carry out all tree works to BS3998: 2010 '*Tree works – recommendations*', as modified by research that is more recent. They should also carry relevant, adequate and up to date insurance.

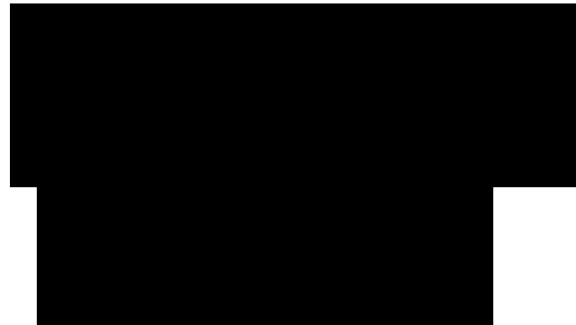
5.3 It is also recommended that all tree works be carried out by an Arboricultural Association approved contractor. Approved contractors are expected to work to industry best standards, and the Arboricultural Association website contains contact details and information on engaging a suitable contractor.

5.4 The trees at this site were assessed for their condition and safety in relation to the average range of weather conditions that the region experiences. Any weather events that exceed the average norm cannot be predicted, and so their effects are not considered within this report.

5.5 The views and opinions contained within this report are entirely those of the author.

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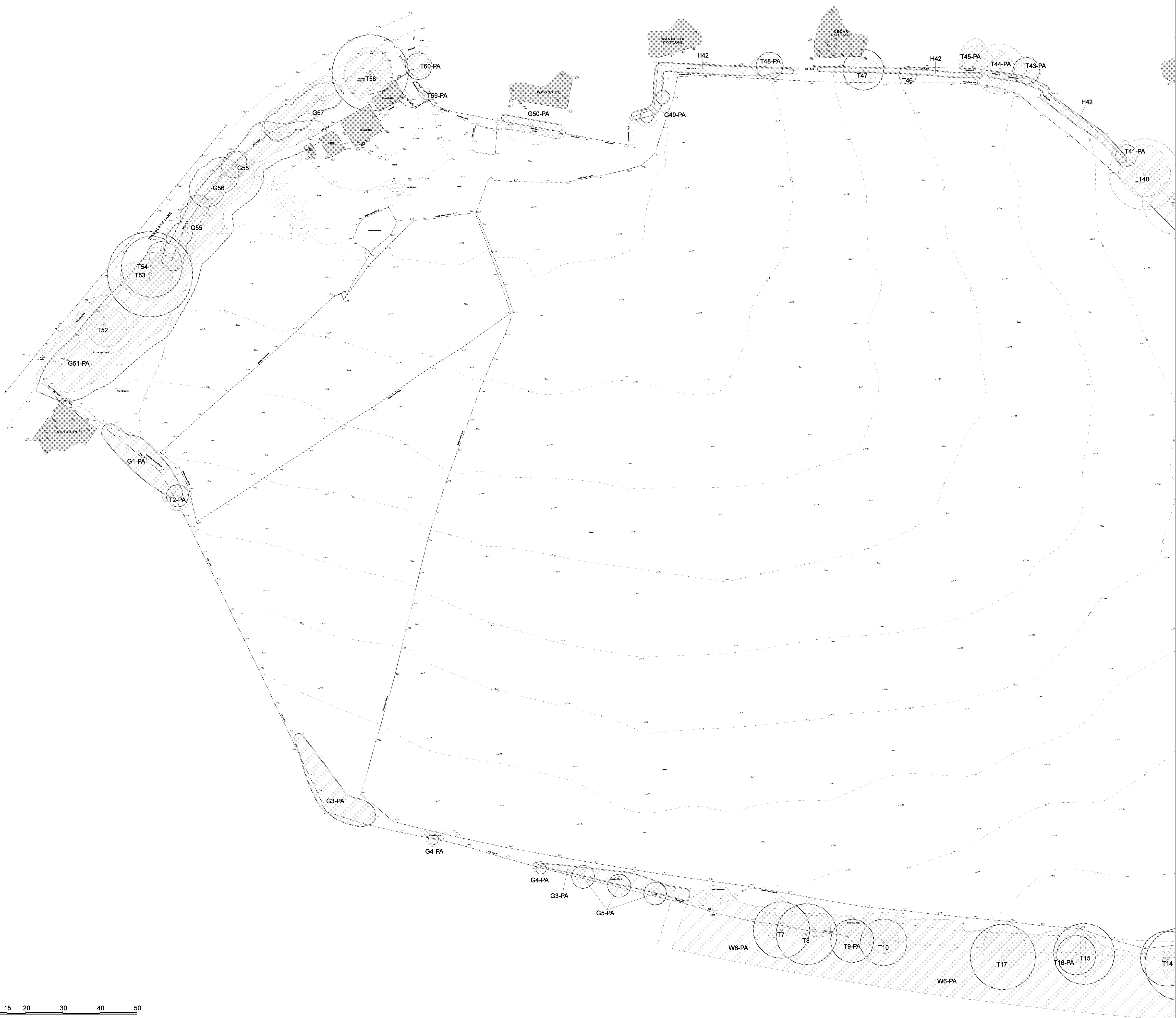


Author: Peter Davies

Date: 26th April 2017

APPENDIX 1

Tree Constraints Plan



- Key:**
- RPA for CAT A* tree
 - RPA for CAT B* tree
 - RPA for CAT C* tree
 - RPA for CAT U* tree
 - Tree canopy

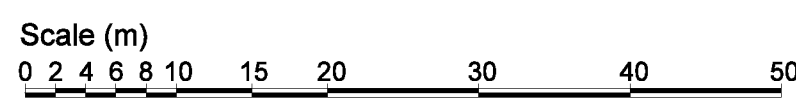
** Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.*

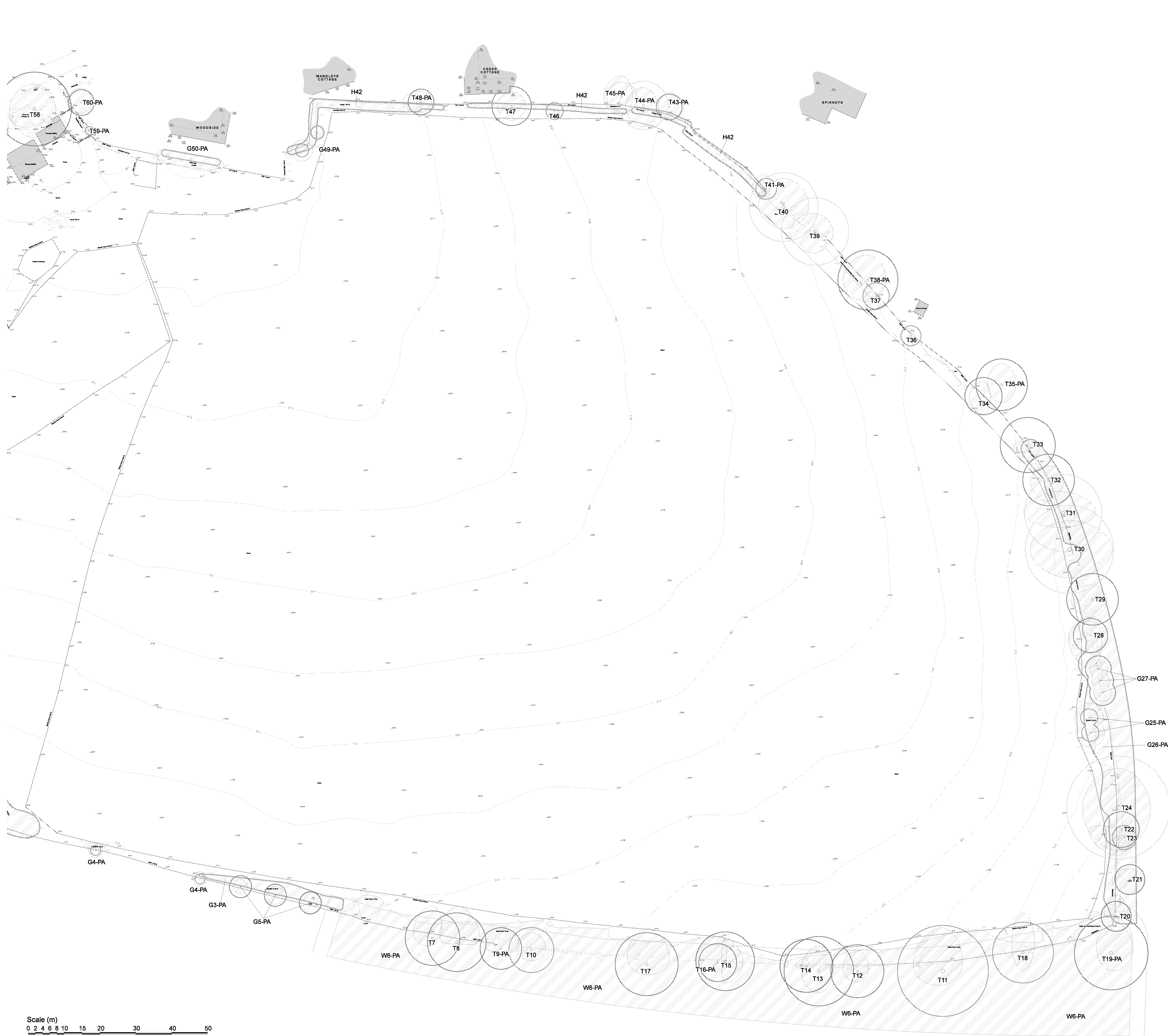
Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/4419/17-01 contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Drawing no: PJC/4419/17/A	Rev: -	Sheet number: 1 of 2
Client and site: Welbeck Land		
Land east of Wandleys Lane Walberton West Sussex		
Drawing title: Tree Constraints Plan		
Date drawn: 26/04/2017		
Scale: 1:500 at A1		
Drawn by: PD	Checked by: NB	





Key:

-  RPA for CAT A* tree
-  RPA for CAT B* tree
-  RPA for CAT C* tree
-  RPA for CAT U* tree
-  Tree canopy

*** Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations':**

Appendix 2, (Tree Survey Schedule) contained within the arboricultural report ref. no. PJC/4419/17-01 contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Drawing no: PJC/4419/17/A Rev: - Sheet number: 2 of 2

Client and site:
Welbeck Land

Land east of Wandleys Lane
Walberton
West Sussex

Drawing title: Tree Constraints Plan

Date drawn: 26/04/2017

Scale: 1:500 at A1

Drawn by: PD

Checked by: NB

APPENDIX 2

Tree Survey Schedule

Tree Survey Schedule

				Client: Welbeck Land Site: Land east of Wandleys Lane Survey date: 12/04/2017 Surveyor: Peter Davies						T: Individual tree or shrub G: Group of 2 or more trees H: Hedgerow W: Woodland block			
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
G1	Mixed (including Lawson cypress, holly, cherry laurel)	5-8 average	Up to 150 average est	Up to 2 over site	0 average	Semi mature	Good	Good	Third party trees and shrubs only viewed from site.	No action required on date of survey.	C2	10.2 average	1.8 average
T2	Pedunculate oak (Quercus robur)	8	250 est	N: 3 E: 4 S: 4 W: 4	Crown: 2 average Branch: 2 average	Semi mature	Good	Good	Small third party tree with good form and development potential.	Leave space within development for future growth.	B1	28.3	3.0
G3	Mixed (including blackthorn, bramble)	1-3 average	Under 75 average est	Refer to drawing	0 average	Semi mature	Good	Fair	Scrub area.	No action required on date of survey.	C1	2.5 average	0.9 average
G4	2x hawthorn (Crataegus monogyna)	4 average	120 average est	2 average	0 average	Semi mature	Good	Good	Third party shrubs.	No action required on date of survey.	C1	6.5 average	1.4 average
G5	3x Norway maple (Acer platanoides)	4-6 average	Up to 260 average	2-3 average	1 average	Semi mature	Good	Good	Small trees on field boundary.	No action required on date of survey.	B1	30.6 average	3.1 average
W6	Mixed (including ash, oak, hawthorn, elder, holly, field maple, hazel, apple)	Up to 18 average	Up to 350 average est	Up to 5 over site	0+ average	Early-over mature	Fair	Fair	Third party, ancient semi-natural woodland. Multiple dead, dying and defective trees on boundary.	Avoid increasing frequency of land use within target zone (leave 15m ancient woodland buffer).	A3	N/A	4.2 from boundary fence/ditch

Tree Survey Schedule

				Client: Welbeck Land Site: Land east of Wandleys Lane Survey date: 12/04/2017 Surveyor: Peter Davies							T: Individual tree or shrub G: Group of 2 or more trees H: Hedgerow W: Woodland block		
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T7	Ash (<i>Fraxinus excelsior</i>)	19	470, 430	N: 9 E: 2 S: 2 W: 5	Crown: 3 north Branch: 3 north	Mature	Fair	Fair	Third party. Dual stemmed from base. Crown bias north. Large deadwood on south side due to suppression.	No action required on date of survey.	B1/2	183.6	7.6
T8	Pedunculate oak (<i>Quercus robur</i>)	21	680	N: 10 E: 6 S: 0 W: 4	Crown: 1 north Branch: 5 north	Mature	Good	Good	Third party tree. North lean due to suppression. Partially failed stem from buttress.	Remove partially failed stem if frequency of land use increases.	B1/2	209.2	8.2
T9	Ash (<i>Fraxinus excelsior</i>)	20	480	N: 6 E: 5 S: 1 W: 4	Crown: 7 east Branch: 6 north	Mature	Good	Fair	Third party tree. Drawn up growth habit. Minor cavity in stem.	No action required on date of survey.	B1/2	104.2	5.8
T10	Field maple (<i>Acer campestre</i>)	7	350, 180, 140, 320	N: 5 E: 4 S: 3 W: 4	Crown: 0 north Branch: 1 south	Over mature	Fair	Fair	Third party tree. Crown bias north and contains deadwood/split limbs. Squirrel damage.	No action required on date of survey.	C1/2	125.3	6.3
T11	Ash (<i>Fraxinus excelsior</i>)	22	400 average x7 stems	N: 12 E: 5 S: 4 W: 8	Crown: 1 north Branch: 1 average	Over mature	Good	Poor	Third party tree. Multi-stemmed from decayed coppice stand.	Avoid increasing frequency of land use within target zone.	C3	506.7	12.7
T12	Ash (<i>Fraxinus excelsior</i>)	18	620 over ivy	N: 6 E: 3 S: 3 W: 4	Crown: 2 north Branch: 3 south	Mature	Good	Fair	Third party tree. Drawn up growth habit. Ivy encroaches crown.	Sever ivy around base to facilitate comprehensive future tree inspection.	B2	173.8	7.4

Tree Survey Schedule

				Client: Welbeck Land Site: Land east of Wandleys Lane Survey date: 12/04/2017 Surveyor: Peter Davies							T: Individual tree or shrub G: Group of 2 or more trees H: Hedgerow W: Woodland block		
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T13	Ash (Fraxinus excelsior)	20	290, 450, 410, 390, 200 over ivy	N: 7 E: 4 S: 6 W: 5	Crown: 4 north Branch: 0 average	Mature	Good	Fair	Third party tree. Multi-stemmed from old coppice stand. Ivy encroaches crown.	Sever ivy around base to facilitate comprehensive future tree inspection.	B2	292.6	9.7
T14	Ash (Fraxinus excelsior)	10	620 over ivy	N: 2 E: 0 S: 0 W: 3	Crown: N/A Branch: 4 east	Dead	Poor	Poor	Third party, standing dead tree, smothered by ivy	Remove if frequency of land use increases.	U	173.9	7.4
T15	Ash (Fraxinus excelsior)	18	550, 410 over ivy	N: 6 E: 5 S: 6 W: 1	Crown: 5 south Branch: 3 south	Mature	Fair	Fair	Third party tree. Co-dominant stems with reasonable union. Ivy clad. Some crown dieback.	Sever ivy around base to facilitate comprehensive future tree inspection.	B2	212.9	8.2
T16	Ash (Fraxinus excelsior)	17	440	N: 8 E: 2 S: 2 W: 6	Crown: 7 north Branch: 3 west	Mature	Good	Fair	Third party tree. One sided crown and drawn up growth habit.	No action required on date of survey.	B2	87.6	5.3
T17	Ash (Fraxinus excelsior)	17	370, 410, 350, 340 over ivy	N: 10 E: 6 S: 3 W: 5	Crown: 1 north Branch: 4 north	Over mature	Good	Fair	Third party tree. Multiple stems from old, partially decayed coppice stand. Ivy encroaches crown.	No action required on date of survey.	B2	245.7	8.8
T18	Ash (Fraxinus excelsior)	16	260, 230, 430, 440	N: 11 E: 3 S: 5 W: 3	Crown: 6 north Branch: 6 north	Over mature	Good	Fair	Third party tree. Multiple stems from old coppice stand. Vertical stem decayed. North stem leans over site.	If retained, avoid increasing frequency of land use within target zone.	C2	225.7	8.5

Tree Survey Schedule

		Client: Welbeck Land Site: Land east of Wandleys Lane Survey date: 12/04/2017 Surveyor: Peter Davies									T: Individual tree or shrub G: Group of 2 or more trees H: Hedgerow W: Woodland block		
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T19	Ash (<i>Fraxinus excelsior</i>)	19	350 average x6 stems est	N: 9 E: 6 S: 5 W: 4	Crown: 2 north Branch: 6 north	Mature	Good	Fair	Third party tree. Multi-stemmed. Under-storey prevents close inspection. Deadwood over site.	Remove deadwood over 40mmØ over site if frequency of land use increases.	B2	332.5	10.3
T20	Field maple (<i>Acer campestre</i>)	10	350 est	N: 6 E: 3 S: 0 W: 3	Crown: 0 north Branch: 1 north	Over mature	Good	Poor	Third party tree. Multi-stemmed. Majority of stems failed due to basal decay.	No action required on date of survey.	U	55.4	4.2
T21	Ash (<i>Fraxinus excelsior</i>)	17	350 est	N: 3 E: 4 S: 4 W: 5	Crown: 3 west Branch: 5 average	Mature	Good	Good	Third party tree. Under-storey inhibits inspection of stem. Previously crown lifted.	No action required on date of survey.	B1/2	55.4	4.2
T22	Ash (<i>Fraxinus excelsior</i>)	14	420	N: 0 E: 2 S: 7 W: 9	Crown: 3 west Branch: 2 west	Mature	Good	Fair	Third party tree. One sided crown due to proximity to T24. Previously crown lifted over site.	No action required on date of survey.	B2	79.8	5.0
T23	Field maple (<i>Acer campestre</i>)	7	280 est	N: 0 E: 2 S: 4 W: 3	Crown: 1 south Branch: 2 west	Early mature	Good	Fair	Third party tree. Suppressed by T22 and T24.	No action required on date of survey.	C2	35.5	3.4
T24	Pedunculate oak (<i>Quercus robur</i>)	19	1200 est	N: 11 E: 9 S: 12 W: 10	Crown: 1 west Branch: 3 average	Over mature	Good	Fair	Third party tree. Large specimen with open grown habit. Minor deadwood throughout crown.	No ground works of any kind should occur within RPA. No development beneath crown spread.	A1/3	651.4	14.4

Tree Survey Schedule

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Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
G25	2x goat willow (Salix caprea)	6-7 average	Up to 200 average est	3-4 average	0 average	Semi mature	Good	Fair	2x adjacent willow clumps forming single canopy shape.	No action required on date of survey.	C2	18.1 average	2.4 average
G26	Mixed (including cherry laurel, bramble, hawthorn, hazel, elder).	1-4 average	Under 75 average est	Refer to drawing	0 average	Semi mature	Good	Fair	Scrub on field boundary providing partial screening from neighbour.	No action required on date of survey.	C2	2.5 average	0.9 average
G27	3x field maple (Acer campestre)	14 average	300 average est	2-3 average	2 average	Early mature	Good	Good	Third party trees. Dense under-storey inhibits inspection. 1x multi-stemmed.	No action required on date of survey.	B2	40.7 average	3.6 average
T28	Pedunculate oak (Quercus robur)	16	400 est	N: 5 E: 3 S: 9 W: 6	Crown: 2 west Branch: 2 west	Mature	Good	Fair	Third party tree only viewed from site. Heavily reduced over neighbours garden and crown lifted over site.	No action required on date of survey.	B1/2	72.4	4.8
T29	Pedunculate oak (Quercus robur)	14	600 east	N: 4 E: 4 S: 5 W: 6	Crown: 1 west Branch: 1 west	Mature	Good	Poor	Third party tree. Crown bias over site due to heavy reduction over neighbours garden. Deadwood in crown.	Remove deadwood over 40mmØ over site if frequency of land use increases.	B2	162.9	7.2
T30	Pedunculate oak (Quercus robur)	20	640, 800 est	N: 8 E: 12 S: 8 W: 11	Crown: 2 west Branch: 2 east	Over mature	Good	Good	Third party tree. Co-dominant stems. Large specimen with open grown habit. Deadwood due to suppression.	No ground works of any kind should occur within RPA. No development beneath crown spread.	A1/3	474.8	12.3

Tree Survey Schedule

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Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T31	Pedunculate oak (Quercus robur)	21	900 est	N: 6 E: 9 S: 4 W: 11	Crown: 3 west Branch: 2 west	Over mature	Good	Good	Third party tree. Crown slightly suppressed by T30 on south side. Deadwood throughout crown.	No ground works of any kind should occur within RPA. No development beneath crown spread.	A1/3	366.4	10.8
T32	Pedunculate oak (Quercus robur)	16	600 over ivy	N: 4 E: 4 S: 6 W: 5	Crown: 3 west Branch: 2 south	Mature	Good	Fair	Third party tree only viewed from site. Ivy encroaches crown. Deadwood due to suppression.	Remove fence attached to stem. Sever ivy around base to facilitate comprehensive future inspections.	B1	162.9	7.2
T33	Pedunculate oak (Quercus robur)	17	400, 500 est	N: 1 E: 3 S: 5 W: 4	Crown: 2 south Branch: 3 south	Mature	Good	Fair	Third party tree with dense under-storey. Dual stemmed. 1x stem pollarded to monolith by neighbour.	No action required on date of survey.	B2	185.5	7.7
T34	Pedunculate oak (Quercus robur)	10	350, 250 est	N: 4 E: 2 S: 5 W: 4	Crown: 1 north Branch: 1 south	Semi mature	Good	Fair	Third party tree suppressed by willow on east side. Good long term development potential.	Remove fence attached to stem.	B1	83.7	5.2
T35	Weeping willow (Salix babylonica)	12	600 est	N: 6 E: 4 S: 5 W: 4	Crown: 0 east Branch: 3 average	Mature	Good	Fair	Third party tree only viewed from site.	No action required on date of survey.	B1	162.9	7.2
T36	Pedunculate oak (Quercus robur)	4	230	N: 2 E: 1 S: 3 W: 3	Crown: 1 west Branch: 1 north	Semi mature	Good	Good	Small third party tree only viewed from site.	No action required on date of survey.	C1	23.9	2.8

Tree Survey Schedule

				Client: Welbeck Land Site: Land east of Wandleys Lane Survey date: 12/04/2017 Surveyor: Peter Davies						T: Individual tree or shrub G: Group of 2 or more trees H: Hedgerow W: Woodland block			
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
T37	White poplar (Populus alba)	11	310	N: 1 E: 1 S: 4 W: 3	Crown: 2 south Branch: 2 east	Semi mature	Good	Good	Third party tree only viewed from site. One sided crown due to suppression from T38 and third party cypress.	No action required on date of survey.	C2	43.5	3.7
T38	Pedunculate oak (Quercus robur)	13	700 est	N: 7 E: 5 S: 6 W: 7	Crown: 3 west Branch: 3 average	Mature	Good	Good	Third party tree only viewed from site. Ivy and under-storey inhibit inspection. Crown lifted over site.	No action required on date of survey.	B1/2	221.7	8.4
T39	Pedunculate oak (Quercus robur)	15	780 over ivy	N: 5 E: 5 S: 6 W: 7	Crown: 2 west Branch: 4 east	Mature	Good	Good	Possibly third party specimen. Open grown habit, Previously crown lifted. Ivy clad stem.	No action required on date of survey.	A1/2	275.2	9.4
T40	Pedunculate oak (Quercus robur)	16	800 est	N: 8 E: 7 S: 6 W: 7	Crown: 4 west Branch: 3 east	Mature	Good	Good	Possibly third party specimen. Open grown habit, Previously crown lifted. Ivy clad stem.	No action required on date of survey.	A1/2	289.5	9.6
T41	Ash (Fraxinus excelsior)	9	200 80, 80, 80	N: 4 E: 1 S: 3 W: 4	Crown: 2 north Branch: 0 average	Semi mature	Good	Fair	Third party tree only viewed from site. Multi-stemmed, ivy clad and suppressed by T40.	No action required on date of survey.	C1	26.8	2.9
H42	Mixed (including blackthorn, hawthorn)	1-2 average	Under 75 average est	1 average	0 average	Semi mature	Good	Good	Formal hedgerow along site boundary providing only low level screening.	No action required on date of survey.	C2	2.5 average	0.9 average

Tree Survey Schedule

				Client: Welbeck Land Site: Land east of Wandleys Lane Survey date: 12/04/2017 Surveyor: Peter Davies							T: Individual tree or shrub G: Group of 2 or more trees H: Hedgerow W: Woodland block		
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T43	Pedunculate oak (Quercus robur)	11	300 est	N: 4 E: 4 S: 4 W: 3	Crown: 3 north Branch: 4 east	Early mature	Good	Fair	Third party tree only viewed from site. One sided crown containing deadwood due to suppression.	No action required on date of survey.	B1/2	40.7	3.6
T44	Pedunculate oak (Quercus robur)	15	400, 400 est	N: 5 E: 4 S: 6 W: 5	Crown: 5 south Branch: 3 average	Mature	Good	Good	Third party tree only viewed from site. Dual stemmed from base. Open grown habit.	No action required on date of survey.	A1/2	144.8	6.8
T45	Pedunculate oak (Quercus robur)	14	350 est	N: 6 E: 3 S: 5 W: 5	Crown: 4 south Branch: 3 east	Mature	Good	Good	Third party tree only viewed from site. Slightly suppressed on east side but no major visible defects.	No action required on date of survey.	A1/2	55.4	4.2
T46	Wild cherry (Prunus avium)	4	200 (live stem only)	N: 0 E: 1 S: 1 W: 2	Crown: 1 south Branch: 2 west	Semi mature	Fair	Poor	Dual stemmed from base (one stem is dead).	No action required on date of survey.	C1	18.1	2.4
T47	Wild cherry (Prunus avium)	10	330, 300	N: 4 E: 4 S: 4 W: 4	Crown: 2 average Branch: 2 average	Mature	Good	Fair	Third party tree only viewed from site. Dual stemmed from 1m. Reduced over neighbours roof.	No action required on date of survey.	B2	90.0	5.4
T48	Pedunculate oak (Quercus robur)	10	300 est	N: 3 E: 3 S: 3 W: 5	Crown: 2 average Branch: 2 west	Early mature	Good	Good	Third party tree only viewed from site. Appears of good condition and development potential.	No action required on date of survey.	B1	40.7	3.6

Tree Survey Schedule

				Client: Welbeck Land Site: Land east of Wandleys Lane Survey date: 12/04/2017 Surveyor: Peter Davies						T: Individual tree or shrub G: Group of 2 or more trees H: Hedgerow W: Woodland block			
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
G49	2x wild cherry (Prunus avium)	6-7 average	Up to 150 average est	3 average	1 average	Semi mature	Good	Fair	2x ivy clad trees, potentially third party specimens.	Sever ivy around bases to facilitate comprehensive future tree inspection.	C1	10.2 average	1.8 average
G50	4x apple (Malus spp.)	3-4 average	Up to 150 average est	1-2 over site	2 over site	Semi-early mature	Good	Fair	Third party apple trees located behind brick wall. Roots not expected to extend into site.	No action required on date of survey.	C1	10.2 average	1.8 average
G51	Cherry laurel (Prunus laurocerasus)	Up to 6 average	Up to 200 average est	Refer to drawing	0 average	Early mature	Good	Fair	Broad belt of vegetation on road frontage providing visual screening.	Will require regular pruning over road in the future.	C1	18.1 average	2.4 average
T52	Pedunculate oak (Quercus robur)	15 est	420, 510	N: 5 E: 6 S: 6 W: 5	Crown: 2 average Branch: 3 south	Mature	Good	Good	Co-dominant stems from 1m. Cherry laurel inhibits inspection of crown. No major visible defects.	No action required on date of survey.	A1	197.5	7.9
T53	Ash (Fraxinus excelsior)	20 est	660, 690	N: 4 E: 6 S: 7 W: 8	Crown: 6 west Branch: 4 west	Over mature	Good	Fair	Large tree on road frontage. Co-dominant stems from base. Previously crown lifted. Deadwood in crown.	Remove deadwood over 40mmØ over site if frequency of land use increases.	B1/2	412.4	11.5
T54	Ash (Fraxinus excelsior)	15 est	480, 490	N: 5 E: 7 S: 5 W: 0	Crown: 8 east Branch: 6 east	Over mature	Good	Poor	Co-dominant stems from base with bark inclusion to 1m. Suppressed by T53. Decayed limb on east side over shrubs.	No action required on date of survey.	C1/2	212.8	8.2

Tree Survey Schedule

				Client: Welbeck Land Site: Land east of Wandleys Lane Survey date: 12/04/2017 Surveyor: Peter Davies						T: Individual tree or shrub G: Group of 2 or more trees H: Hedgerow W: Woodland block			
Tree ref. no.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m2)	Root Protection Radius (m)
G55	8x hazel (Corylus avellana)	6-8 average	250 average est	N: 3 E: 5 S: 3 W: 4	0-2 average	Over mature	Good	Fair	Hazel clumps located along road frontage, contributing to boundary screening.	No action required on date of survey.	C2	28.3 average	3.0 average
G56	3x field maple (Acer campestre)	10-12 average	400 average est	N: 3 E: 4 S: 4 W: 3	1 average	Mature	Good	Fair	Multi-stemmed trees on road frontage. Drawn up growth habits. Ivy clad. Abundant small deadwood.	No action required on date of survey.	C2	72.4 average	4.8 average
G57	8x hazel (Corylus avellana)	7-9 average	300 average est	N: 5 E: 4 S: 4 W: 4	0-2 average	Over mature	Good	Fair	Hazel clumps located along road frontage, contributing to boundary screening.	No action required on date of survey.	C2	40.7 average	3.6 average
T58	Pedunculate oak (Quercus robur)	16	860	N: 7 E: 6 S: 8 W: 7	Crown: 2 south Branch: 2 south	Over mature	Fair	Good	Low branches overhanging shed deformed due to conflict with elder trees. Minor dieback on north side.	Remove lowest limb overhanging shed. Clear brash, logs and ivy to allow inspection of buttress.	B1/2	334.6	10.3
T59	Flowering cherry (Prunus spp.)	6	100	N: 2 E: 2 S: 2 W: 2	Crown: 2 average Branch: 2 average	Young	Good	Good	Small tree with no major visible defects.	No action required on date of survey.	C1	4.5	1.2
T60	Flowering cherry (Prunus spp.)	6	300 est	N: 4 E: 3 S: 3 W: 4	Crown: 2 west Branch: 1 average	Early mature	Good	Fair	Third party tree in neighbours garden. Only viewed from site.	No action required on date of survey.	B1	40.7	3.6

APPENDIX 3

Cascade Chart for Tree Quality Assessment

APPENDIX 4

Root Protection Area Formulas

CALCULATING THE RPA

For single stemmed trees

$$\text{RPA(m}^2\text{)} = \frac{(\text{stem diameter (mm)} @ 1.5 \text{ m x } 12)^2 \times 3.142}{1000}$$

For trees with two to five stems, a combined stem diameter is calculated as follows:

$$\sqrt{(\text{stem diameter } 1)^2 + (\text{stem diameter } 2)^2 \dots + (\text{stem diameter } 5)^2}$$

For trees with more than five stems, the combine stem diameter is calculated as follows:

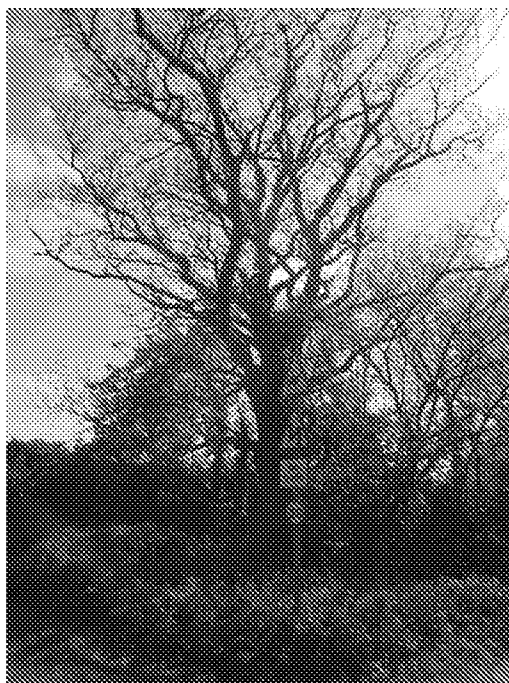
$$\sqrt{(\text{mean stem diameter})^2 \times \text{number of stems}}$$

APPENDIX 5

Photographs



Photograph 1 – Trees G51-G56



Photograph 2 – Tree T58



Photograph 3 – Group G57



Photograph 4 – Wandleys Copse



Photograph 5 – Wandleys Copse



Photograph 6 – Tree T24



Photograph 7 – Trees T28-T30



Photograph 8 – Trees T30-T31



Photograph 9 – Trees T34-T35



Photograph 10 - Trees H42-T46